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PATENT SPECIFICATION

258,003



Application Date: June 10, 1925. No. 15,100/25.

Complete Left: March 10, 1926.

Complete Accepted: Sept. 10, 1926.

PROVISIONAL SPECIFICATION.

Improvements in or relating to Hospital and like Bedsteads with "on and off" Castors.

We, SAMUEL LAING WHITFIELD, a British subject, and WHITFIELDS BED-STEADS LIMITED, a company incorporated under the laws of Great Britain and Ireland, both 109—125, Watery Lane, Bordesley, Birmingham, do hereby declare the nature of this invention to be as follows:—

This invention relates to hospital bedsteads of the kind in which castors or wheels and stump feet can be brought alternatively into contact with the floor, so that in the one circumstance the bedstead is capable of being wheeled readily whilst in the other it is firmly located and not liable to displacement by accident or in the course of an operation.

This invention has been devised with the object of effecting certain improvements in bedsteads of this kind.

A bedstead which embodies this invention may have the frame and either the head-end or the foot-end of any known or convenient construction, but the remaining end of the bedstead, (hereinafter referred to as the wheeling end) is provided with stump feet which normally rest on the floor. The wheeling end is also provided with one or more castors or wheels which are capable of being lowered into contact with the floor by means of suitable mechanism with sufficient pressure to raise the said stump feet from the floor. The remaining points of contact of the bedstead with the floor are permanently provided with wheels or castors. In one preferred form, the head-end of the bedstead is of ordinary construction and is provided with two castors; while the foot-end is provided with two vertical tubes, open at either end, which are rigidly attached to the said foot-end and lie in the plane thereof, between the legs or pillars. A

[Price 1/-]

round bar or a strong tube, hereinafter called a bar, slides inside each of these tubes the said bars being provided each with a castor at the lower end, which castors are free to turn with respect to the bars. The bars project beyond the upper ends of the tubes, and each carries a small malleable iron casting through which is a hole of which the axis is horizontal, the holes in the two castings being co-axial. Two short round rods of metal are pinned into these holes, and pass into the two ends of a connecting tube in which they are a nice fit, and a cross-member is thus formed whereby the two bars, with their castors, can both be raised or lowered together. Two short connecting rods are fitted to the round rods, and are kept apart by the ends of the connecting tube and are kept together by means of two short tubular distance pieces threaded on to the short round rods and extending from the outer sides of the connecting rods to the malleable castings carried by the vertical bars.

The vertical tubes are preferably cast into the foot-end by the method of chill-casting well-known in bedsteads, a chill being cast round the said vertical tubes at or near their upper and lower ends and round the ends of transverse tubes, extending horizontally between the vertical tubes and beyond them to the uprights, to which they are chill-cast or otherwise attached. Two short bearing tubes are fixed near the upper ends of the upright tubes, being in this manner of construction drifted into the upper chill castings surrounding the said upright tubes, and have their axes co-linear and horizontal and lying a little in front of the upright tubes. These bearing tubes carry the actuating levers,

which are malleable castings having at their lower ends bearing pins which fit freely and project outwardly into the bearing tubes and actuating pins which project inwardly and are a short distance from the bearing pins; these actuating pins engage with the two connecting rods, and thus when the two actuating levers are depressed the cross-member is drawn downwards and forces down the vertical bars and with them the castors, whereby the stump feet are raised from the floor and the bedstead can readily be wheeled.

The actuating levers are connected together at their ends remote from the bearing pins by means of a tubular or solid cylindrical handle which is rigidly attached to the said levers and lies horizontally, when it is uppermost, in or nearly within the plane of the foot-end. The actuating levers are curved or otherwise arranged so that in both the up and the down position the actuating pins are well past the dead-centre, so that the mechanism is locked up or down by gravity. By arranging the parts suitably and giving them suitable dimensions

the contact of the actuating levers with the cross-member limits the upward movement of the actuating levers, while the contact of the connecting rods with one of the transverse tubes limits their downward movement.

The constructional details of a bedstead embodying this invention will be liable to considerable obvious modification when other special features are included in the bedstead, such as special supports for surgical purposes, fracture fittings, and the like. For some purposes it may be found expedient to fit wheels of fixed direction instead of castors, and various methods of construction other than chill casting may be found advisable. The mechanism for raising and lowering the castors may be placed in the head-end instead of the foot-end, or even elsewhere if the need arises and if the actuating mechanism is suitably modified.

Dated this 9th day of June, 1925.

MEWBURN, ELLIS & Co.,
70-72, Chancery Lane, London, W.C.2,
Chartered Patent Agents.

COMPLETE SPECIFICATION.

Improvements in or relating to Hospital and like Bedsteads with "on and off" Castors.

We, SAMUEL LAING WHITFIELD, a British subject, and WHITFIELDS BEDSTEADS LIMITED, a company incorporated under the laws of Great Britain and Ireland, both 109-125, Watery Lane, Bordesley, Birmingham, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to hospital bedsteads of the kind in which castors or wheels and stump feet can be brought alternatively into contact with the floor, so that in the one circumstance the bedstead is capable of being wheeled readily whilst in the other it is firmly located and not liable to displacement by accident or in the course of an operation.

This invention has been devised with the object of effecting certain improvements in bedsteads of this kind. A bedstead made in accordance with this invention has stump feet at one or both ends, and one or more castors provided with mechanism whereby the said castors can be forced down so that they raise the stump feet from the floor. The said

mechanism comprises one or more vertical tubes lying within the bow of the head-end or foot-end of the bedstead and connected to the vertical parts thereof by one or more rigid cross members, a vertical rod provided with a castor at its lower end and adapted to slide within each of the said tubes, one or more connecting links adapted to actuate the said rods, one or more levers adapted to actuate the said connecting links and to turn about an axis parallel to the plane of the head-end or foot-end of the bedstead, and an actuating handle projecting from the said lever and lying substantially within the bow of the head-end or foot-end of the bedstead in one or both of its normal positions of rest.

In a preferred form the parts are so arranged and proportioned that the castor actuating mechanism, in one or both of its positions of rest, is past the dead-centre, and means are provided whereby the castors are automatically held stationary in either or both of the positions of rest, by the weight of the bedstead or of the moving parts, without the use of catches or locking devices.

Of the drawings left herewith:

Fig. 1 shows in front elevation and Figs. 2 and 3 in side elevation the foot-end of a bedstead in raised and lowered position respectively embodying this invention, the rest of the bedstead being of ordinary construction, with castors at the head-end. The bow *a* carries the two corner-chills *b, b*, which have the usual dove-tails, and the two bands *c, c*. Into these are chilled the cross-members *d, d* and *e, e*, the said members being cut through to receive two upright tubes *f, f*, to which they are attached by the chills *g, g*, and *h, h*. Two short pieces of tube *j, j*, are drifted into the chills *g, g*, to serve as bearings, and these bearings receive the projecting ends of two malleable iron levers *k, k*, which carry small crank-pins *m, m* with which the short connecting rods *n, n* engage. These connecting rods encircle two rods *o, o*, which, with the tube *p* and the two short tubular distance pieces *q, q*, constitute a cross-member which connects the two double sockets *r, r*, into which the ends of the rods *o, o*, are pinned. These sockets are pressed on to the ends of two vertical rods *t, t*, which slide in the tubes *f, f*, and carry the castors *u, u* at their lower ends. The levers *k, k* are connected by means of a tube *w* which serves as an actuating handle, and as a precaution against the falling of this lever being caused by pressure of the bed-clothing or of the patient's feet the swivel catch *x* is provided. The bow carries stump feet *y, y* at its lower ends.

In the position shown the castors are clear of the floor, and the bedstead rests firmly on the stump feet *y, y*. When it is to be wheeled, the catch *x* is turned aside and the tube *w* is grasped and forced downwards by a rotary movement of the levers *k, k* about the bearings *j, j*. The movement is continued until the crank pins *m, m* have passed the bottom dead centre position relative to the rods *o*.

The weight now being wholly carried by the vertical rods *t, t* and the connecting rods *n, n* the pull on the connecting rods tends to return the crank pins *m* to their top dead centre position. As the crank pins have been moved past their bottom dead centre position the pull on the connecting rods will tend to bring the crank pins to top dead centre by completing the circular movement but this is prevented by the connecting rods *n, n* coming into contact with the cross members *d, d* which act as a stop.

The device may be fitted to both ends of a bedstead if it is required to be specially steady for operational or any other purpose, and may obviously be

modified to actuate a single castor in the centre of the head-end or foot-end of the bedstead, though the use of the double castor is advantageous on account of the flexibility of most bedsteads when their legs are raised.

The constructional details of a bedstead embodying this invention will be liable to considerable obvious modification when other special features are included in the bedstead, such as special supports for surgical purposes, fracture fittings, and the like. For some purposes it may be found expedient to fit wheels of fixed direction instead of castors, and various methods of construction other than chill casting may be found advisable.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A bedstead having stump feet at one or both ends and having one or more castors provided with mechanism whereby the said castors can be forced down so that they raise the said stump feet from the floor, the said mechanism comprising one or more vertical tubes lying within the bow of the head-end or foot-end of the bedstead and connected to the vertical parts thereof by one or more rigid cross members, a vertical rod provided with a castor at its lower end and adapted to slide within each of the said tubes, one or more connecting links adapted to actuate the said rods, one or more levers adapted to actuate the said connecting links and to turn about an axis parallel to the plane of the head-end or foot-end of the bedstead, and an actuating handle projecting from the said lever and lying substantially within the bow of the head-end or foot-end of the bedstead in one or both of its normal positions of rest.

2. A bedstead according to Claim 1 in which the parts are so proportioned that the castor-actuating mechanism, in one or both of its positions of rest, is past the dead-centre, whereby the castors are automatically held stationary in either or both of the positions of rest by the weight of the bedstead or of the moving parts.

3. A bedstead according to either of the foregoing claims in which the castor-actuating mechanism is embodied, in the head-end or foot-end, and comprises one or more vertical tubes chill-cast into position, rods sliding therein and carrying the castors at their lower ends, a cross-member connecting the bars at their upper ends, which cross-member

has bearings for the connecting rods, two
cranks, extended to form actuating
levers, which engage with the connect-
ing rods and have their stationary bear-
5 ings in certain of the chill-castings by
which the component members of the
head-end or foot-end are held together,
and an actuating handle whereby the
extended ends of the said cranks are
10 coupled together.

4. A bedstead constructed, arranged,
and adapted to be operated substantially
as set forth herein with reference to the
drawings left herewith.

Dated this 10th day of March, 1926. 15

MEWBURN, ELLIS & Co.,
70—72, Chancery Lane, London, W.C.2,
Chartered Patent Agents.

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Fig. 1.

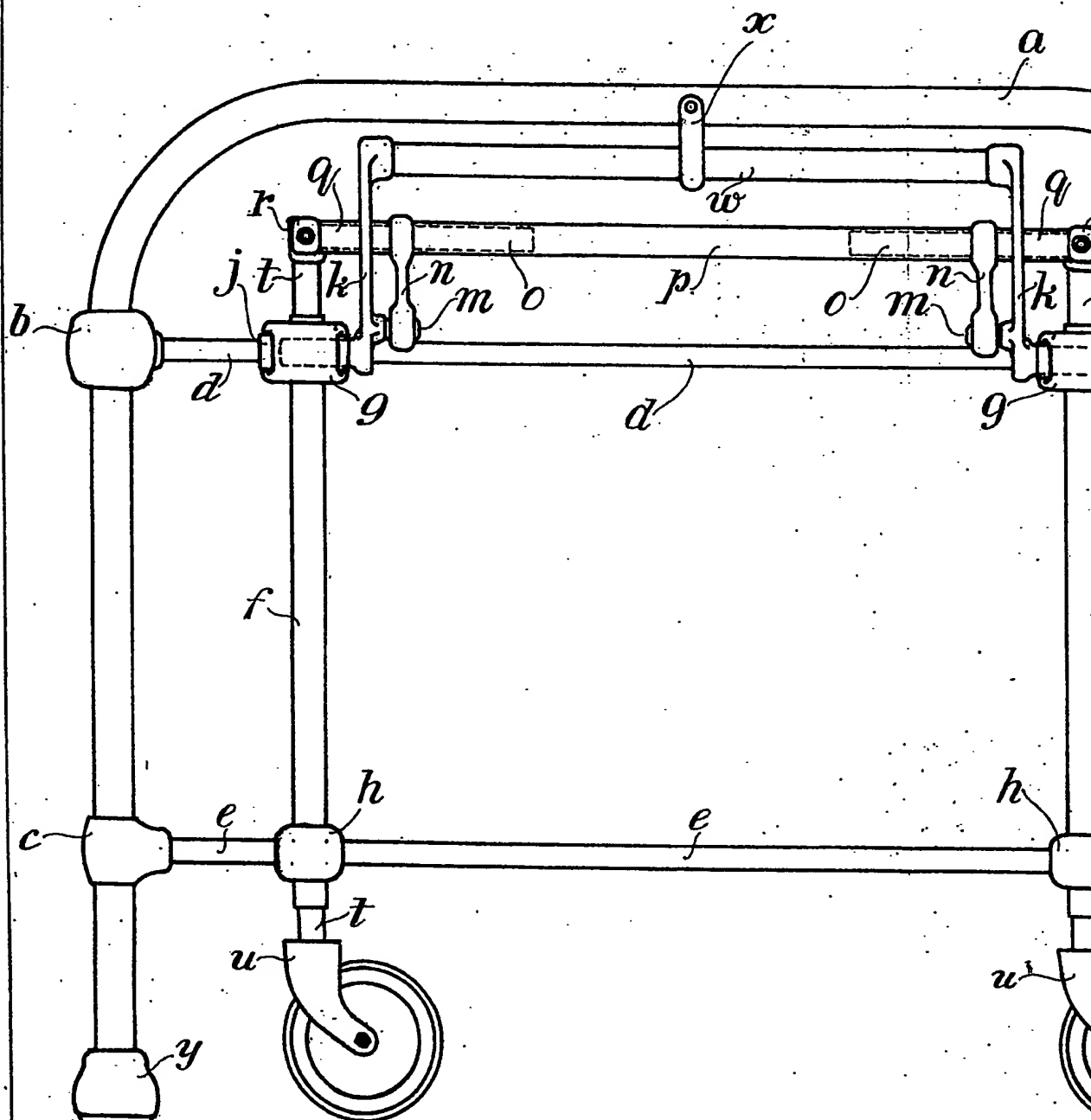


Fig. 3.

Fig. 2.

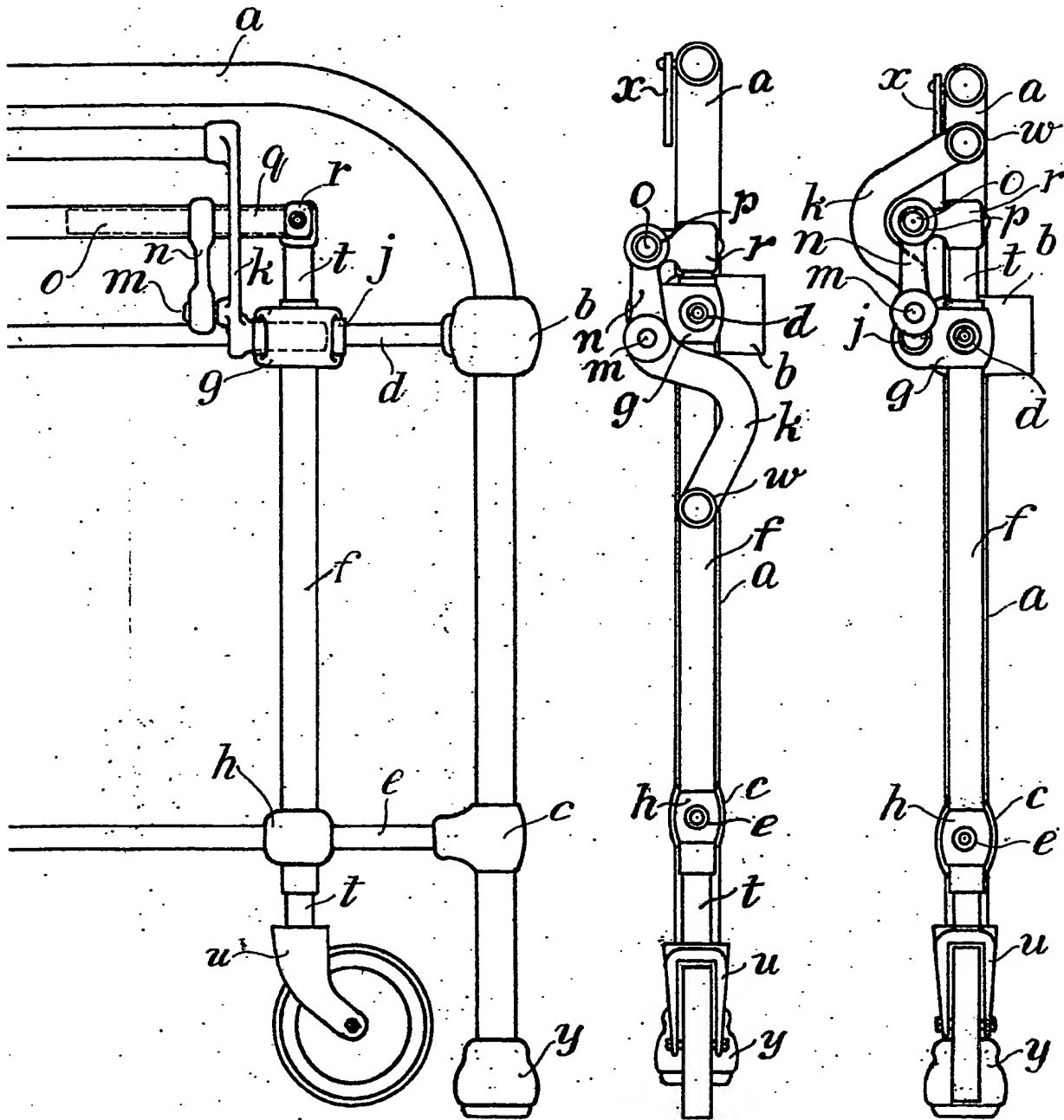


Fig. 1.

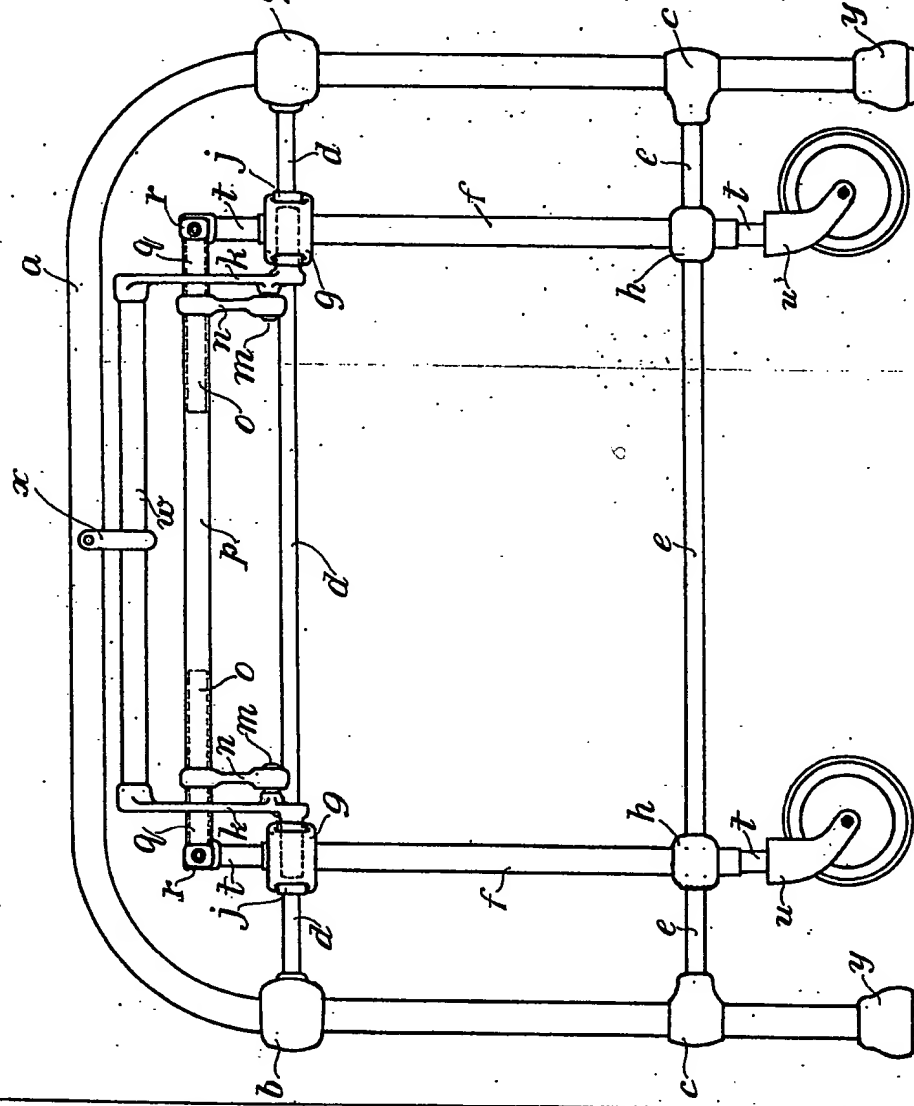


Fig. 3.

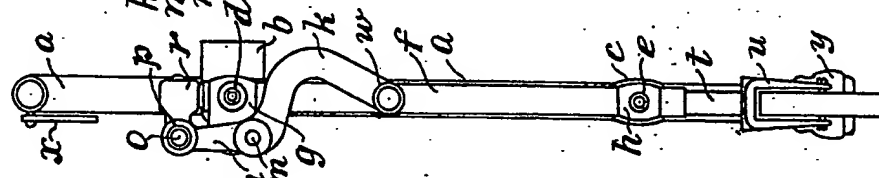
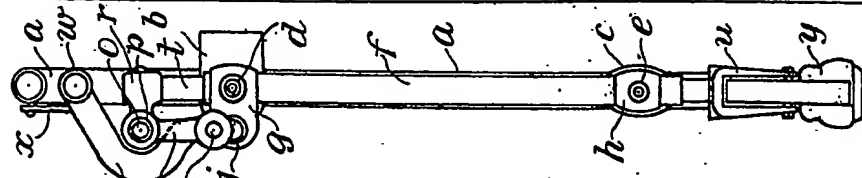


Fig. 2.



[This Drawing is a reproduction of the Original on a reduced scale]